

# Marina Baldissera Pacchetti

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## Research expertise

Interdisciplinary researcher with expertise on: quality of information for climate change adaptation, feminist epistemology and co-production of climate change information, uncertainty quantification and risk assessment, history and philosophy of climate change science.

## Employment

Recognized Researcher, Earth System Services, Knowledge Integration Team. *September 2022–current*.  
Earth Sciences Department, Barcelona Supercomputing Center, ES.

Research Fellow, Sustainability Research Institute. *June 2019–current*.  
School of Earth and Environment, Faculty of Environment, University of Leeds, UK.

Research Assistant, American Electric Power Project. August 2018–May 2019.  
Voinovich School of Leadership and Public Affairs, Ohio University, USA.

## Education

**PhD**, History and Philosophy of Science, University of Pittsburgh, 2018.  
Dissertation: *Spatiotemporal scales in scientific modeling: identifying target systems*.  
Committee: Robert Batterman (director), James F. Woodward, Mark Wilson, Sandra D. Mitchell, Charlotte Werndl (external).

**MSc**, History and Philosophy of Science, London School of Economics and Political Science, 2010.  
Passed with *Distinction*.

**BSc**, Mathematics and Physics, University College London, 2009. Passed with *First Class Honours*.

## Publications

### Journal Articles

2022. Risbey, J., Squire, D., **Baldissera Pacchetti, M.**, Black, A., Chapman, C., Dessai, S., Irving, D., Matear, R., Monselesan, D., Moore, T., Richardson, D., Sloyan, B., Tozer, C. Common issues in verification of climate forecasts and projections. *Climate*. <https://doi.org/10.3390/cli10060083>

2021. **Baldissera Pacchetti, M.**, S. Dessai, D. A. Stainforth, S. Bradley. Assessing the quality of state-of-the-art regional climate information: the case of the UK Climate Projections 2018. *Climatic Change*. <https://doi.org/10.1007/s10584-021-03187-w>

2021. **Baldissera Pacchetti, M.**, S. Dessai, S. Bradley, D. A. Stainforth. Assessing the quality of regional climate information. *Bulletin of the American Meteorological Society*. <https://doi.org/10.1175/BAMS-D-20-0008.1>

2020. **Baldissera Pacchetti, M.** Structural uncertainty through the lens of model building. *Synthese*. Online First: <https://doi.org/10.1007/s11229-020-02727-8>

2018. **Baldissera Pacchetti, M.** A role for spatiotemporal scales in modeling. *Studies in History and Philosophy of Science*, 67, 14–21. <https://doi.org/10.1016/j.shpsa.2017.10.006>

## White Papers and Other

2022. Bremer, S., Wardekker, A., **Baldissera Pacchetti, M.**, Bruno Soares, M. & Van Der Sluijs, J. P. Editorial: What counts as high quality knowledge for climate adaptation? *Frontiers in Climate, section Climate Risk Management*. DOI: 10.3389/fclim.2022.905786.

2021. **Baldissera Pacchetti, M.**, J. Schacher, S. Dessai, M. Bruno Soares, R. Lawlor & J. Daron. Towards a UK Climate Services Code of Ethics. Meeting Summary in the *Bulletin of the American Meteorological Society*. <https://doi.org/10.1175/BAMS-D-21-0137.1>

2019. Michaud, G., Zimmer, M., Khalaf, C., Allwine, D., Pitt, D., Trainer, M., Kloepper, J., **Baldissera Pacchetti, M.**, Westover, K., Riley, J., Hall-Jones, C., Cordetti, A., & Ewart, M. *Evaluating the economic benefits of solar energy deployment in Southeastern Ohio*. Prepared for American Electric Power (AEP) Ohio.

## Translations

2021. **Baldissera Pacchetti, M.** English translations of

Ehrenfest-Afanassjewa, Tatjana. (1925). Zur Axiomatisierung des zweiten Hauptsatzes der Thermodynamik. *Zeitschrift für Physik*, 33, 933–945; and

Selected parts of Ehrenfest-Afanassjewa, Tatjana. (1956). *Grundlagen der Thermodynamik*. Leiden: Brill.

In Jos Uffink, Giovanni Valente, Charlotte Werndl, & Lena Zuchowski (Eds.), *Tatjana Afanassjewa and her legacy: philosophical insights from the work of an original physicist and mathematician*. Springer. <https://doi.org/10.1007/978-3-030-47971-8>

## Papers under review or in preparation

An advanced review article on the “Physical Climate Storyline” approach to develop climate information for decision making. (under review in *Wires Climate Change* – Marina Baldissera Pacchetti (lead author) with Suraje Dessai, Ted Shepherd, Jana Sillmann, Bart Van Den Hurk, Liese Coulter).

An interdisciplinary paper that exemplifies the use of Bayesian Networks to explore value judgements and uncertainty in creating different versions of deterministic and non-deterministic Physical Climate Storylines. (in preparation for submission – with Taro Kunimitsu (lead author), Alessio Ciullo, Bart van den Hurk, Theodore G Shepherd and Jana Sillmann)

Climate Impact Storylines for Assessing Socio-Economic Responses to Remote Events. (under review in *Climate Risk Management* – with Bart van den Hurk (lead author), Alessio Ciullo, Liese Coulter, Suraje Dessai, Ertug Ercin, Henrique Goulart, Raed Hamed, Stefan Hochrainer, Elco Koks, Patryk Kubiczek, Anders Levermann, Reinhard Mechler, Maarten van Meersbergen, Benedikt Mester, Robin Middelani, Katie Minderhoud, Jaroslav Mysiak, Sadhana Nirandjan, Christian Otto, Paul Sayers, Jana Sillman, Jacob Schewe, Theodore G Shepherd, Dana Stuparu, Katrien Witpas)

A philosophical paper on the trust relationship between policy makers and scientists in the context of climate adaptation and scientific uncertainty. (in preparation for submission, single author paper)

An interdisciplinary paper that explores diversity of modeling approaches to address the shortcomings of uncertainty quantification in estimates of climatic change. (in preparation for submission – with Julie Jebeile and Erica Thompson)

## Teaching Experience

### At the University of Leeds

Courses taught as independent instructor

Section on data collection and analysis (including co-leading a field trip) for SOEE2570: Research in the Environmental Social Sciences, Spring 2022.

Section on Climate Change Adaptation for SOEE5550M Climate Change: Impacts and Adaptation, Spring 2020, 2021.

Lecture on Scientific Uncertainty for SOEE3112 Environmental Risk: Science, Policy and Management, Autumn 2019, 2020, 2021.

Theses advised

Eleanor Lebbon. Climate Change and Environmental Policy MSc. *Analysis of functions, values, and long-term effects of local-level climate change initiatives in South and Mid-Wales.* (2022)

Bin Tan. Climate Change and Environmental Policy MSc. *Study on the relationship between climate change and the development process of Chinese history and society.* (2022)

Kayon Cox. Climate Change and Environmental Policy MSc. *Drivers and barriers to household adaptation to tsunami risks in the Turks and Caicos Islands.* (2020)

Hannah Brockway. Climate Change and Environmental Policy MSc. *A comparative analysis of policies to enforce behavioural change to reduce energy consumption in low income households.* (2020)

### At the University of Pittsburgh

Courses taught as independent instructor (developed syllabus and delivered content, designed and delivered assessments)

Magic, Medicine and Science (Introductory undergraduate course on the history of science from Ancient Greek philosophy and science to the Early Modern period), Spring 2017.

Myth and Science (Introductory undergraduate course on the history of Ancient Greek philosophy and science), Fall 2016.

Principles of Scientific Reasoning (Introductory undergraduate course on critical thinking), Spring 2015.

## Selected presentations

### Peer-Reviewed

Beyond uncertainty quantification: new challenges in the epistemology of climate change adaptation. (upcoming)

Symposium on Climate Risks: Impact, Vulnerability, and Adaptation  
Biennial Meeting of the Philosophy of Science Association,  
University of Pittsburgh, Pittsburgh, PA, USA  
November, 2022.

Evaluating the quality of model-based regional climate information: the case of the UK Climate Projections 2018.

European Society for Philosophy of Science,  
Hybrid Conference (attended online)  
September 15-18, 2021.

Annual Meeting of the European Meteorological Society,  
Virtual Conference  
September, 2021.

British Society for Philosophy of Science,  
Virtual Conference  
July 7-9, 2021.

Atmospheric Science Conference,  
National Centre for Atmospheric Science,  
Royal Meteorological Society,  
Virtual Conference  
July 6, 2021.

UK Met Office Science Conference,  
Virtual Conference  
May 11-12, 2021.

European Geophysical Union General Assembly,  
Virtual Conference  
April 19-30, 2021.

Revisiting the distinction between predictions and projections.

Biennial Meeting of the Society for the Philosophy of Science in Practice (SPSP),  
Michigan State University (MSU) in East Lansing, Michigan, USA.  
July 7-10, 2020. Cancelled due to COVID-19

Assessing the epistemic quality of climate information for adaptation.

Consortium for Socially Relevant Philosophy of/in Science and Engineering (SRPoiSE),  
Michigan State University (MSU) in East Lansing, Michigan, USA.  
July 7-10, 2020. Cancelled due to COVID-19

The International Conference on Climate Services,  
Indian Institute of Tropical Meteorology, Pune, India.  
February 11–13, 2020.

Studying the Climate: A Challenge of Complexity,  
Institute of Physics, London, UK.  
February 6, 2020.

Trust and values at the science-policy interface.

The 2019 Annual Meeting of the Society for Decision Making under Deep Uncertainty,  
Delft University of Technology, Netherlands.  
November 5–7, 2019.

## Invited

Climate Science for Adaptation Decision Support: Epistemic and Value-theoretic Perspectives.

Workshop in Philosophy of Climate Science.  
Leibniz Universitaet Hanover  
Hanover, DE.  
14-15 October, 2022.

One or Many? The logics of Physical Climate Storylines.

Workshop: epistemic and methodological issues in climate science.  
Oeschger Centre for Climate Change Research,  
University of Bern, CH.  
March 18, 2022.

Trust and values at the science-policy interface.

MCMP colloquim (with Wendy Parker),  
Munich Centre for Mathematical Philosophy,  
Ludwig-Maximilian Universitaet, Munich.  
January 26, 2022.

Values in Science Workshop,  
Institute for Future Studies, Stockholm.  
May 17-18, 2021.

Structural uncertainty through the lens of model building.

Research Seminar,  
Department of Geography,  
University of Bergen, Bergen, Norway.  
May 28, 2020.

Department of Philosophy,  
George Mason University, Fairfax, VA, USA.  
February 20, 2020.

Epistemic pluralism in public policy.

MPA 5850: Policy Analysis for Public Affairs and Leadership,  
Voinovich School of Leadership and Public Affairs, Ohio University, USA.  
February 11, 2019.

Structural uncertainty: target system identification.

Philosophy Department,  
Virginia Polytechnic Institute and State University, Blacksburg, USA.  
February 12, 2018.

## Grants

Horizon Europe grant (Climate Science and Responses Call) for the project “*Climateurope2*”. Allocated €400,000 of €9,000,000 to co-lead a work-package that develops and updates a framework for standardizing climate services. Led the participation of the University of Leeds in the proposal writing stage. 2021-2026.

Knowledge exchange and impact policy support fund (£29,682) for the project “*Next generation of national climate projections to support public policy.*”, with Prof. Suraje Dessai and Prof. David A. Stainforth. University of Leeds, 2021-2022.

Newberry Renaissance Consortium Grant, 2014.

Travel Grant to attend Second Irvine-Pittsburgh-Princeton conference at UC Irvine, 2014.

Wesley C. Salmon Research Fund, 2014.

Travel Grant for the Philosophy of Logic, Math and Physics Graduate conference and Metaphysics within and without Physics, University of Western Ontario, 2014.

NSF Travel grant for presenting at the meeting of the History of Science Society, Chicago, 2014.

## Service to the Profession

### Editorship

Lead Guest Associate Editor, *Climatic Change*, with Suraje Dessai, Seamus Bradley, David A. Stainforth, Erica Thompson and James Risbey, Special issue on “Quality of climate information for climate change adaptation”.

Guest Associate Editor in Climate Risk Management, *Frontiers in Climate*, with Scott Bremer, Marta Bruno Soares, Arjan Wardekker and Jeroen Van Der Sluijs, Research Topic on “High-Quality Knowledge for Climate Adaptation: Revisiting Criteria of Credibility, Legitimacy, Salience, and Usability”.

### Other

Co-lead of the research group “Climate Change Adaptation and Vulnerability Services”, part of the Sustainability Research Institute, School of Earth and Environment, University of Leeds.

Reviewer for philosophy journals: *British Journal for the Philosophy of Science*, *Synthese*, *Philosophy of Science*, *Philosophers' Imprint*.

Reviewer for science journals: *Climate Risk Management*, *Climate Services*, *Frontiers in Climate*.

Expert Reviewer for *Intergovernmental Panel on Climate Change, Working Group II, First Order Draft and Working Group I, Second Order Draft of AR6*.

Lead convener for the session on *Physical Climate Storylines*, Meeting of the European Meteorological Society 2022, Bonn. September 2022.

Lead convener for the session on *Physical Climate Storylines*, Scenarios Forum 2022, IIASA, Vienna. June 2022.

Co-organizer with Jillian Schacher, Suraje Dessai, Rob Lawlor, Marta Bruno Soares and Seamus Bradley on the Ethics of Climate Services, School of Earth and Environment and the IDEA Centre, University of Leeds. *Funded by the pump-priming grant "ReactCC"*. November 2020.

Lead organizer with Suraje Dessai, Erica Thompson, Seamus Bradley and David A. Stainforth, Workshop on Quality of Climate Information, School of Earth and Environment, University of Leeds, and ESRC Centre for Climate Change Economics and Policy. October 2020.

Co-organizer with Giovanni Valente, Workshop on Climate Models and Public Policy, Department of Philosophy, University of Pittsburgh. February 28, 2015.

Co-organizer with Elay Shech and Giovanni Valente, Workshop on Climate Models and Uncertainty, Center for History and Philosophy of Science, University of Pittsburgh. February 26, 2015.

## Awards

"Highly Commended" for the Positive Impact University Partnership Award in the Faculty of Environment for improving individuals' experience across the Faculty. University of Leeds, 2021.

Teaching award for excellent student reviews for the course "Magic, Medicine and Science", Department of History and Philosophy of Science, 2013.

## Professional Development

Online training on Climate Services for Adaptation Using Climate Data. Copernicus and European Center for Medium Range Weather Forecast. Online. November–December, 2020.

Autumn School on Co-Producing Climate Adaptation Research. Center for the Study of the Sciences and the Humanities, University of Bergen. Bergen, Norway. October 20–25, 2019.

Workshop on Teaching and Learning in Philosophy with a Special Emphasis on Inclusive Pedagogy. University of Pittsburgh. Pittsburgh, USA. February 4, 2017.

Utrecht Summer School on Physics of the Atmosphere at the Institute for Marine and Atmospheric Research. Utrecht, Netherlands. August 18–29, 2014.

Research Methods Workshop for Early-Career Graduate Students on Music and Travel, 1500-1700. The Newberry Library, Chicago, USA. March 7, 2014.

Vienna International Summer School – Scientific World Conceptions, Session on "Climate Studies". Vienna, Austria. July 1–14, 2013.

## Media Contributions

Guest Post: How to assess regional climate information for adaptation planning. 2021.  
<https://www.carbonbrief.org/guest-post-how-to-assess-regional-climate-information-for-adaptation-planning>

Nature Podcast: Music and the making of science, Published March 12, 2015.  
<http://www.nature.com/nature/podcast/index-audiofile-2015-03-12.html>

## **Language Competence**

Italian (native), English (fluent), German (fluent), Spanish (conversational), French (novice), Latin (intermediate).

## Annex

### Peer Reviewed Conference Presentations

A role for spatiotemporal scales in modeling.

The 18th UK and European Conference on Foundations of Physics,  
London School of Economics, UK.  
July 16–18, 2016.

In what sense is uncertainty intrinsic to climate science?

British Society for the Philosophy of Science Annual Meeting,  
University of Manchester, UK.  
July 2–3, 2015.

Uncertainty in Climate Science and its Impact on Decision Making,  
Sorbonne–Universités (SND), University of Paris 4, France.  
May 26–28, 2015.

Algorithms and Complexity in Mathematics, Epistemology and Science,  
Rotman Institute, University of Western Ontario, Canada  
May 4–5, 2015.

Idealization of scales of motion in atmospheric dynamics.

Second Irvine-Pittsburgh-Princeton Conference on the Mathematical  
and Conceptual Foundations of Physics,  
Department of Logic and Philosophy of Science, University of California, Irvine, USA.  
March 20–21, 2014.

Turning music into sound: Vincenzo Galilei's contributions to acoustics.

Biennial Meeting of the History of Science Society, Chicago, USA.  
November 6–9, 2014.

167th Meeting of the Acoustical Society of America, Providence, RI, USA.  
May 5–9, 2014.

Galileo: Science, Faith and the Arts,  
St. Michael's College, University of Toronto, Canada.  
October 3–4, 2013.

Last updated: October 2, 2022